Benthic Habitats of the Florida Keys

New Mapping Products for Marine Ecosystems

This document summarizes a seven-year cooperative effort—completed in 1998—between the National Ocean Service (NOS) and the Florida Fish and Wildlife Conservation Commission's Fish and Wildlife Research Institute (FWRI) to map the types and extent of benthic habitats within the Florida Keys. It also announces the availability of two products: an Atlas and Internet web site.

Benthic habitats are places on or near the sea floor where aquatic organisms live. These beds of seagrass, areas of mud and sand, and coral reefs provide food and shelter to a rich array of animals and form the Florida Keys coral ecosystem.

The Florida Keys are the third largest barrier reef ecosystem in the world and the only barrier reef ecosystem in the United States. The preservation of this ecosystem, especially its coral reefs, is a National priority.

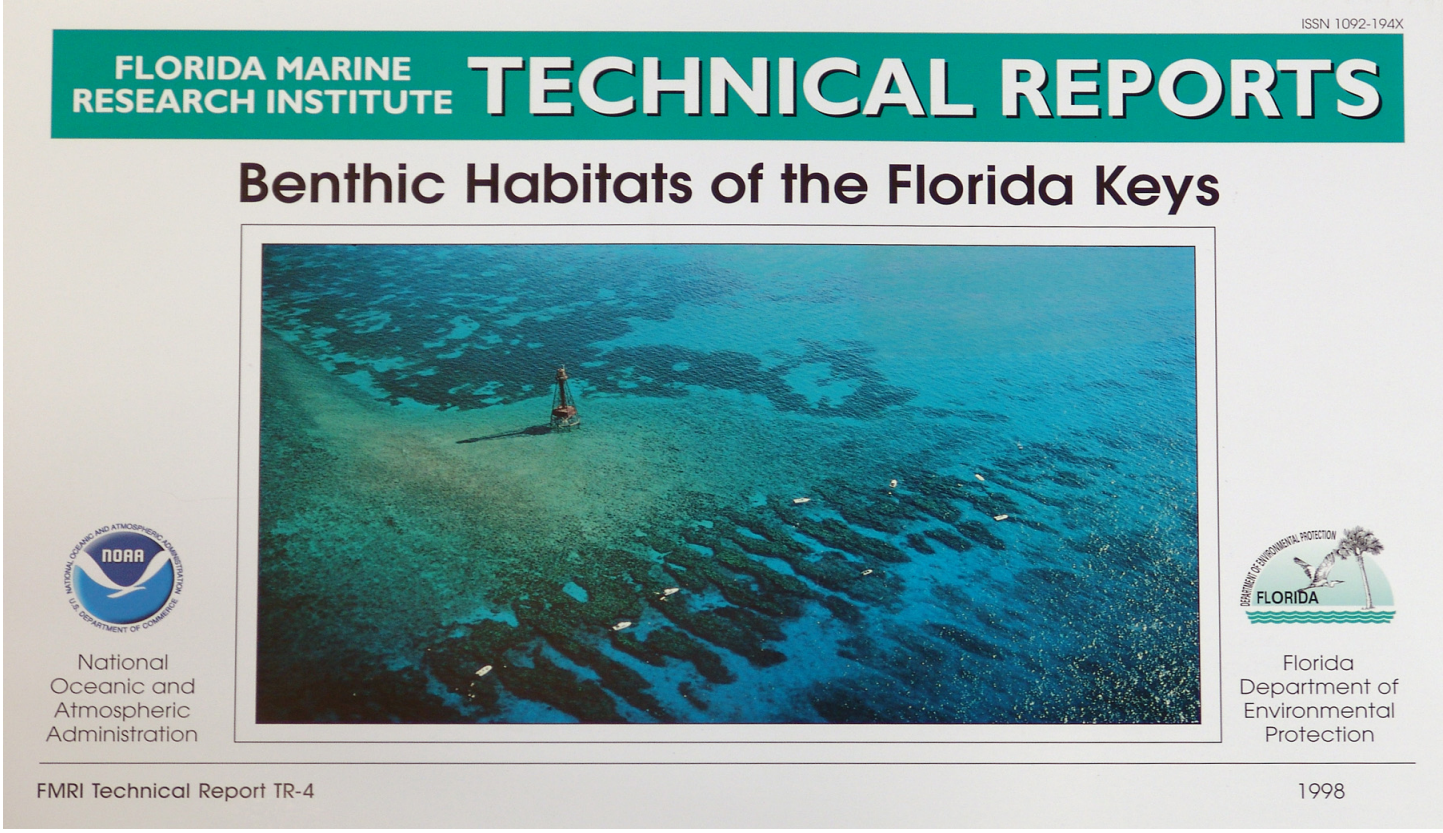
This ecosystem is an attractive environment for many recreational, commercial and scientific activities, and is critical to the tourist economy of South Florida. Coral ecosystem-related expenditures generated $4.4 billion in sales, income, and employment and created over 70,000 full-time and part-time jobs in the region. Also, the Florida Keys National Marine Sanctuary receives an estimated 3 million visitors each year.

Precise mapping of benthic habitats is essential for developing management strategies that balance the protection of these habitats with their use. Accurate maps of these areas enable resource managers to make informed decisions about the use and protection of the resources.

Information Content

The benthic habitats of the Florida Keys were visually interpreted and digitized from a series of 450 aerial photographs collected between December 1991 and April 1992. Ecologists outlined the boundaries of specific habitat types by interpreting spatial characteristics and color patterns on the photographs.

Benthic habitats were classified into four major categories—corals, seagrasses, hardbottom, and bare substrate—and 24 subcategories, such as sparse seagrass and patch reef. Habitat boundaries were georeferenced and digitized to create computer maps. These digital data were then incorporated into a geographic information system (GIS) for direct electronic mapping.



*The **Benthic Habitats of the Florida Keys** Atlas, released in 1998 and revised in 2000.*

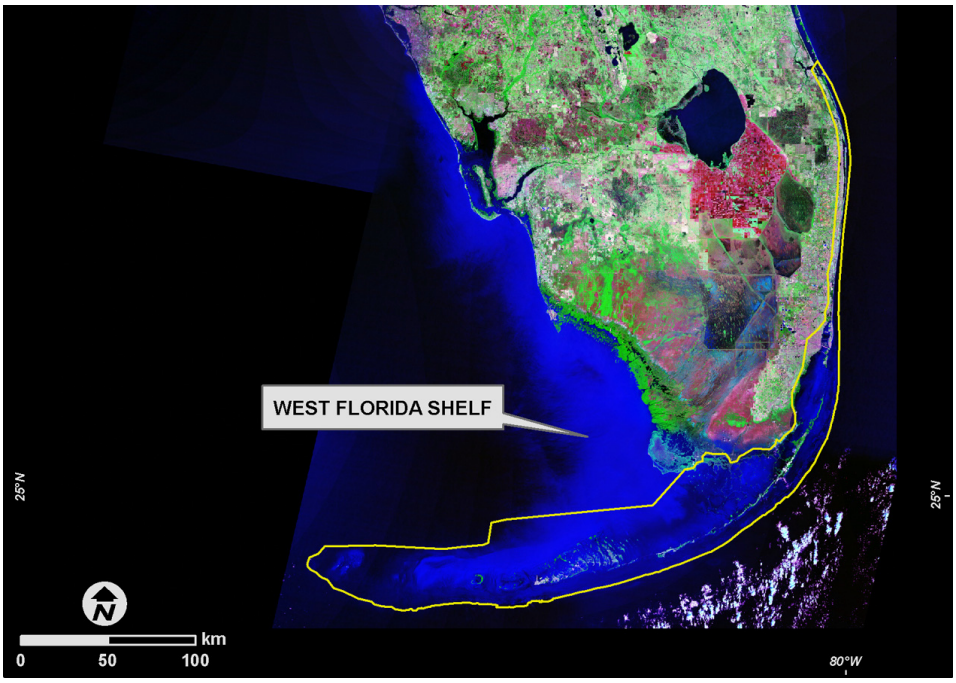
A Series of Products

A map from the Atlas showing benthic habitats associated with American Shoal near Sugarloaf Key, Florida.

The Benthic Habitats of the Florida Keys Atlas is a major product of the benthic habitats mapping project. It contains 32 full-color plates showing the distribution of benthic habitats in the Florida Keys, accompanied by descriptions of bottom habitats. The Atlas, released in 1998 and revised in 2000, also includes extended descriptions of the physical environments, human activities, and environmental concerns of the Florida Keys coral ecosystem.

An Internet web site <http://flkeysbenthicmaps.noaa.gov/> is another major product of the Florida Keys benthic habitats mapping project. Its primary purpose is to distribute the digital benthic habitat data. The files are provided in multiple formats to encourage immediate use in GIS desktop mapping software. The web site also includes metadata associated with the digital benthic habitat map data and links to related mapping activities and products. Using a GIS to display the digital data enables managers and researchers the ability to overlay their own geographic data, such as water quality monitoring or fish distribution information, on the maps.

In 2005, NOS and FWRI, along with numerous other partners, initiated an effort to map the shallow-water coral ecosystems of southern Florida, including that portion mapped in 1998. The new region to be mapped covers nearly 13,000 sq km of shallow-water coral ecosystems and includes Martin, Broward, Palm Beach, and Miami-Dade Counties, Biscayne National Park, Tortugas Ecological Reserve, Dry Tortugas National Park, Florida Bay, and the Florida Keys National Marine Sanctuary (see map below). More information about this new mapping effort can be found at: <http://ccma.nos.noaa.gov/ecosystems/coralreef/fl_mapping.html>



The yellow polygon defines the new 13,000 sq km mapping area in southern Florida.

To learn more about either the 1998 Benthic Habitats of the Florida Keys mapping project or the new mapping effort initiated in 2005, contact either:

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To request a copy of the ***Benthic Habitats of the Florida Keys*** Atlas, contact Kathleen O'Keife at the Fish and Wildlife Research Institute.